

DETAILED ACTION

Claims 1, 2, 4-12 and 14-23 are pending, claims 3 and 13 are cancelled.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1, 2, 4-6, 14-16, 18-21 and 23 are rejected under 35 U.S.C. 103(a) as obvious over Bray US 3 542 199, Brown US 4 990 248 and Burrows US 5 221 473.**

Claims 1 and 14-16, Bray teaches a module comprising: a cylindrical container provided at a first of its axial ends with a head (20) having fluid inlet and outlet orifices communicating with the interior of the module and having a cylindrical skirt (part containing 38) projecting axially therefrom, in which are housed pretreatment means (32) and treatment means (60), which perform the same function in substantially the same way with substantially the same result as the pretreatment and treatment means disclosed herein, wherein the container is monolithic to form a disposable module and the interior is divided by separator means (36), which perform the same function in substantially the same way with substantially the same results as the separator means

disclosed herein, into an external cylindrical space and an internal cylindrical space, the separator means extending from the cylindrical skirt to the bottom of the container, the external and internal cylindrical space communicating with each other via one or more passages at the bottom of the container, the treatment means include a cartridge including one or more selectively permeable membranes, the pretreatment means is housed in the external cylindrical space and the treatment means is housed in the internal cylindrical space, the external cylindrical space communicates, at the first axial end of the container with a first orifice (30) and the internal cylindrical space communicates separately, at the first axial end, with an orifice (88), the cartridge comprises a cylindrical enclosure and concentric therewith a hollow perforated central innermost tube (58) of the cylindrical container in which the cartridge is contained, the central inner most tube sharing the axis of the cylindrical container with the external cylindrical space and the internal cylindrical space, a reverse osmosis treatment membrane between the cylindrical enclosure and the central inner most tube and communicating with the central innermost tube (fig. 1). Bray does not teach the first axial end having an inlet and two outlets or the bottom comprising a crenellate ring.

Brown teaches a module comprising: a cylindrical container (44, 50) comprising a cylindrical wall closed at a first axial end by a head (45, 51) and closed at a second axial end by a bottom (46, 55), the container provided at the first axial end with fluid inlet and outlet orifices communicating with the interior of the module, in which are housed pretreatment means (16, 60) and treatment means (29, 70), which perform the same function in substantially the same way with substantially the same result as the

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pretreatment and treatment means disclosed herein, the container is monolithic and the interior thereof is divided by a separator (15, 71) into an external and internal cylindrical space communicating with each other via one or more passages in the vicinity of the second axial end of the container, the separator comprising a cylindrical wall extending from the head toward the bottom, the treatment means includes a cartridge including one or more selectively permeable membranes, the pretreatment means and the cartridge are housed in the external cylindrical space and the internal cylindrical space respectively, the external cylindrical space communicates at the same end as the first axial end of the container, with a first orifice (48, 54), and the internal cylindrical space communicates separately at the same end as the first axial end of the container with a second orifice (43, 56) and a third orifice (91, 58), the cartridge comprises a cylindrical enclosure and concentric therewith a hollow perforated central tube (12, 62), the central tube sharing the axis of the cylindrical container with the external cylindrical space and the internal cylindrical space, one or more reverse osmosis treatment membranes between the cylindrical enclosure and the central tube and communicating with the central tube (fig. 1, 2, 5). If the tube (12, 62) is not considered to be the innermost tube of the container, it would have been obvious to one of ordinary skill in the art at the time the invention was made to remove the post-filter (30, 75) should it be desirable to replace less than the entire filter cartridge (col. 10, lines 38-42) and omission of an additional filtering step would be obvious if this feature were not desired, *In re Larson*, 144 USPQ 347 (1965). Upon removal of the post-filter the tube (12, 62) being the innermost tube of the cartridge would also be the innermost tube of the cylindrical

container. Brown does not teach the separator wall extending from the head to the bottom or a crenellated ring.

The use of a separator wall extending from the head to the bottom is known in the art as taught by Bray and the use of a head assembly having an inlet and two outlets is also known in the art as taught by Brown. All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention, *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Bray teaches a loose connection between the wall (36) and the bottom provides a flow path for fluid to flow from exterior cylindrical space to the interior cylindrical space. Burrows teaches a crenellated ring of the bottom of a reverse osmosis cartridge, the ring includes locating means (160) taking the form of patterns (160) projecting from the internal face of the bottom of the container, the ring holds a cylindrical wall (142) of a separator means at a an axial distance from the face of the bottom, and the ring includes recesses between the crenellations forming axial abutments for the wall (142) (fig. 4 and 5, col. 8, lines 20-28) with passages for fluid formed by the crenellations in the crenellated ring. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the ring as taught by Burrows in the module because the ring allows water to pass through it to a central tube (fig. 5, col. 8, lines 24-

25). The ring of Burrows would allow a less restricted flow of fluid from the outer cylindrical space to the internal cylindrical space.

Claim 2 and 5, Bray and Brown further teach the cartridge is a reverse osmosis cartridge (abstract of both Bray and Brown); and the pretreatment means is frontal filtration or polyphosphates (Brown: col. 8, line 53 – col. 9, line 52, Bray: col. 2, lines 10-15).

Claim 4, Bray further teaches means (90) for providing a sealed connection between the separator and the cylindrical enclosure of the cartridge, the seal being attached to the cylindrical enclosure and the extending around the cylindrical enclosure (fig. 1).

Claim 6, Brown further teaches the container includes a cylindrical wall closed at the first axial end by the head module including three parallel connectors (48, 43, 91) in each of which is formed one of the three orifices (fig. 1, 2). The recitation of the head and bottom being non-removable is merely a recitation of making the head and bottom integral with the housing. [T]he use of a one piece construction instead of the structure disclosed in [the prior art] would be merely a matter of obvious engineering choice; *In re Larson* 144 USPQ 23 1952.

Claim 23, Brown further teaches the central tube is closed at the same end as the annular face of the cartridge through with the fluid enters the cartridge (fig. 1, 2).

Claims 18-21, Brown further teaches in the second embodiment the head and the bottom each include a nesting retainer (head retainer at 53d, bottom retainer at 79d)

housing an axial end of a central tube (62), a seal (59d) is between the bush and the tube (63) housed in a groove formed in the central tube (63), and the bush communicates with the second orifice (58) (fig. 5); and a central truncated cone (joined to the tube (62) at 79') inside the central tube (62) and it projects over a longer distance from the inner face of the bottom than the retainer of the bottom (fig. 5).

2. Claims 7, 8, 10-12 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bray '199, Brown '248 and Burrows '473 as applied to claim 1 above, and further in view of Regunathan et al. US 4 645 601.

Claim 7, Bray, Brown and Burrows teach the module of claim 6 but do not teach the connectors (54, 56, 58) extend perpendicular to the axis of the container.

Regunathan teaches a head (30) with three parallel ports (50, 52, 54) with connectors that can take various forms to accommodate the construction of the particular head member with which it is to be associated (col. 3, lines 8-11). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the connectors to be perpendicular to the axis of the container to fit a head member adapted to connect to a module with perpendicular ports.

Claim 8, Bray teaches the skirt provides continuity of separation from a corresponding longitudinal end of the cylindrical wall to the bottom and Burrows teaches the ring provides continuity of separation from a corresponding longitudinal end of the cylindrical wall to the head.

Claims 10-11, Brown further teaches the cylindrical skirt (53) has the wall (71) housed concentrically within it with a seal (59d) in an annular recess between them (fig. 5).

Claim 12, Brown further teaches housing the wall (71) within the skirt (53) therefore it would have been obvious to one having ordinary skill in the art to house the wall (71) within the ring (28) as taught by Whittier (876) because the skirt provides a bearing surface for the wall (71) for sealing (col. 7, lines 17-19).

Claim 22, Brown further teaches a porous disk (35) in the vicinity of the axial ends of the container but not retaining the pretreatment means. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the disk for the pretreatment means. The porous disks function to keep the carbon granules within the filter (col. 4, lines 61-63).

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bray '199, Brown '248, Burrows '473 and Regunathan '601 as applied to claim 8 above, and further in view of Petrucci et al. US 4 948 505.

Bray in view of Brown, Regunathan and Whittier teaches the filter module but do not teach the head being glued or welded together. Petrucci teaches the top cover (134) bonded to the main housing (54) by welding (col. 9, lines 48-50). It would have been obvious to one having ordinary skill in the art at the time the invention was made

to use the welding as taught by Petrucci because the canister is easily and economically fabricatable (col. 9, lines 3-5).

4. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bray '199, Brown '248, Burrows '473 and Regunathan '601 as applied to claim 8 above, and further in view of Gundrum et al. US 5 891 334.

Bray in combination with Brown, Regunathan and Whittier teaches the filter module of claim 8 but does not teach centering fingers. Gundrum teaches a cylindrical separator wall (33) with radially extending fingers (34) extending to the container wall (25) in the vicinity of each axial end of the wall (33) (fig. 2 and 5). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the fingers as taught by Gundrum because the fingers (34) define a flow passageway between the separation wall (33) and the container wall (25) (col. 4, lines 51-67).

Response to Arguments

5. Applicant's arguments filed 12/4/09 have been fully considered but they are not persuasive.

Applicant argues that Burrows does not teach the separator means extends from the cylindrical skirt to the crenellated ring and that the ring of Burrows does not hold a cylindrical wall of a separator means. The ring of Burrows holds a cylindrical wall of a separator means in that it engages the element (159) which is simply an extension of

the cylindrical wall of the separator means and is only used to provide support for the additional flow path defined by (172). Furthermore, Bray teaches the separator means extends from the cylindrical skirt to the bottom of the container where the crenellated ring would be located when Bray is modified in view of the teachings of Burrows. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues the loose connection of Bray is not located at the bottom of the container. Applicant's argument is based solely on orientation of the container. The claims recite a structure; the structure of Bray may be operated in any orientation without hindering the operation thereof. Applicant also argues that because Bray already provides a mechanism by which fluid can flow from the exterior cylindrical space to the interior cylindrical space one of ordinary skill in the art would not be motivated to provide a crenellated ring. The use of crenellated ring is known in the art to provide flow of fluid from an exterior space to an interior space and would have been recognized as a structural variant. Applicant's recitation of a crenellated ring is merely the use of a known element in a known way with predictable results. Also, applicant has not provided any support for the crenulations resulting in more restricted flow. A crenellated ring would provide less restricted flow in that parts of the wall are removed to provide a free flowing space between the crenellations. Such a configuration would provide

greater flow space between two abutting walls compared to a loose connection between the abutting walls, as one of ordinary skill in the art would have recognized.

Applicant argues that Burrows does not teach a pretreatment means and a cartridge means disposed in exterior and interior spaces. This feature is taught by both Bray and Brown and Burrows is not relied on to teach this feature. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues that Bray and Brown are not designed and do not have the components arranged to form a monolithic disposable module. The filters of Bray and Brown are monolithic in that they constitute or act as a single uniform whole, as defined by dictionary.com. Also, the filters of Bray and Brown may be disposed of as a whole and it is unclear what structure applicant is reciting that makes the container non-disposable and what makes the container disposable. Anything can be disposed of at the choice of the user and ultimately will be disposed of when its useful life is over.

Applicant argues that the examiner has imported language into the claims that is not present. In claim 6 applicant recites having the head and bottom being non-removable. Making the head and bottom non-removable is, in essence, connecting the head and bottom to the container making them an integral whole, made up of parts. Brown teaches the cap may be removed; however, making the cap non-removable would not hinder the operation of the apparatus of Brown.

Applicant argues that the head retainer (53d) of Brown is dedicated to the post filter that is not present in the instant device and therefore does not correspond to the nesting retainer of claims 18-21. Figure 5 of Brown clearly shows the head and bottom of the container includes a nesting retainer (53d and 79d). The recitation of the nesting retainer being for the cartridge is a recitation of intended use that does not add any additional structural limitations to the claim. Also, the nesting retainer of Brown engages the cartridge as seen in figure 5.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENJAMIN KURTZ whose telephone number is

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(571)272-8211. The examiner can normally be reached on Monday through Friday 8:00am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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